

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-313562

(43)Date of publication of application : 14.11.2000

(51)Int. Cl.

B65H 35/07

(21)Application number : 11-123324 (71)Applicant KINUGAWA RUBBER IND CO LTD

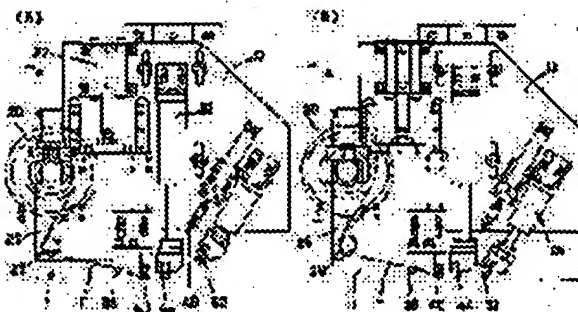
(22)Date of filing : 30.04.1999 (72)Inventor : SEGAWA SHINICHI  
SUGA HIROKI  
SUZUKI MASATOSHI  
TOKUNAGA KOJI

## (54) SELF-ADHESIVE TAPE AUTOMATIC STICKING DEVICE

(57)Abstract:

**PROBLEM TO BE SOLVED:** To perfectly automate the sticking work of a protection tape onto the surface of a door glass run.

**SOLUTION:** In this device, the end part of a tape T drawn out of a tape drum 20 is attached by pressure to a door glass run 1 with an initial pressure attaching element 40, the end part is pressure bonded with an auxiliary pressure attaching element 44, then an actual pressure attaching element 52 is brought into pressure-contact with the door glass run 1. In this state, by slidably moving the whole carriage 13 relatively to the door glass run 1, the tape T is drawn out of the tape drum 20 and stuck onto the door glass run 1. After the completion of the sticking, the initial pressure attaching element 40 and the auxiliary pressure attaching element 44 are moved up, a tensile force is applied to the tape T, then the tape T is cut with a cutter blade 48.



---

## CLAIMS

---

### [Claim(s)]

[Claim 1] The work positioning fixture which carries out positioning fixation of the work which is the equipment which pulls out an adhesive tape and is stuck on the surface of a work from a tape drum, moving to the longitudinal direction to the work of a predetermined length, and serves as a tape attachment object, The carriage which a slide drive is carried out by the predetermined slide drive means, and carries out a run move along with the longitudinal direction of this work while maintaining the relative-position relation with a work, The tape drum on which the adhesive tape is beforehand twisted while the aforementioned carriage is supported possible [ rotation on this carriage ] in \*\*\*\*\*, and the adhesive tape is pulled out one by one by the tension accompanied by a run move of carriage, The tape initial pressure arrival member which sticks on a work the edge of the adhesive tape which was prepared in the aforementioned carriage possible [ vertical movement ], and was pulled out by the down operation from the aforementioned tape drum, It is prepared in the anti-run orientation side possible [ vertical movement ] rather than a tape initial pressure arrival member among the aforementioned carriage. The tape book sticking-by-pressure member which presses an adhesive tape with a tape initial pressure arrival member so that the fraction by which tape initial pressure arrival member \*\*\*\*\* was carried out [ aforementioned ] in connection with the run of the carriage [ itself ] in the state of the down may be followed, Adhesive-tape automatic attachment equipment characterized by having the tape cutter which is prepared in the aforementioned carriage and cuts an adhesive tape to predetermined timing.

[Claim 2] Adhesive-tape automatic attachment equipment according to claim 1 characterized by send resistance of an adhesive tape giving the aforementioned tape drum by the braking means.

[Claim 3] Adhesive-tape automatic attachment equipment according to claim 2 characterized by being that to which the aforementioned tape drum and the tape initial pressure arrival member are supported by the common slider, and this slider moves up and down to carriage.

[Claim 4] The tape supplementary sticking-by-pressure member is prepared possible [ vertical movement ] among the aforementioned carriage between the tape initial pressure arrival member and the tape book sticking-by-pressure member, and a tape supplementary sticking-by-pressure member carries out a down operation following the tape initial pressure arrival operation by the tape initial pressure arrival member. Adhesive-tape automatic attachment equipment according to claim 3 characterized by sticking a part for an anti-run flank by pressure rather than this tape initial pressure arrival member among the edges of the adhesive tape stuck in the aforementioned tape initial pressure arrival member.

[Claim 5] The knife-edge-like tape cutter is prepared possible [ vertical movement ] among the aforementioned carriage between the tape initial pressure arrival member and the tape book sticking-by-pressure member. Tension is given to the adhesive tape currently pressed by only the tape book sticking-by-pressure member by raising a tape initial pressure arrival member and a tape supplementary sticking-by-pressure member just before a tape attachment work end. Adhesive-tape automatic attachment equipment according to claim 4 characterized by cutting an adhesive tape by dropping a tape cutter to this tension grant fraction.

[Claim 6] Adhesive-tape automatic attachment equipment according to claim 5 characterized by forming each aforementioned sticking-by-pressure member of the felt which an adhesive tape is contacted [ felt ] directly and makes this stick to a work by pressure.

### DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to suitable attachment equipment to stick automatically the masking tape for [ in a parts circulation phase ] getting damaged and preventing a grade on the fraction which should serve as the design side of the door glass run for automobiles especially about the equipment which sticks an adhesive tape on the front face of a comparatively long picture work.

[0002]

[Description of the Prior Art] The attachment equipment enables it to perform the work smoothly, without touching the adhesive tape itself with a direct hand, and it enabled it to perform also to a cut of a tape is known for JP,2-124969,U, JP,2-124970,U, JP,7-12366,U, etc. in performing attachment work of an adhesive tape.

[0003]

[Problem(s) to be Solved by the Invention] the mass-production line of the door glass run for automobiles which mentioned above each such conventional adhesive-tape attachment equipment since [ like an office supplies or ] it was premised on the thing of a manual operation formula -- at all -- being inapplicable -- especially, \*\*\*\* of a door glass run -- implementation of the equipment which can stick an adhesive tape on the front face of a long picture work automatically and quickly is demanded strongly

[0004] this invention is the thing which was made that it should respond to such a request and enabled it to perform attachment work of an adhesive tape efficiently in the production line of the door glass run for automobiles etc. especially and which is going to stick and is going to offer equipment.

[0005]

[Means for Solving the Problem] Invention according to claim 1 is equipment which pulls out an adhesive tape and is stuck on the surface of a work from a tape drum while moving to the longitudinal direction to the work of the \*\*\*\* predetermined length of the door glass run for automobiles. It is premised on having the work positioning fixture which carries out positioning fixation of the work used as a tape attachment object, and the carriage which carries out a run move along with the longitudinal direction of this work while a slide drive is carried out by the predetermined slide drive means and the relative-position relation with a work is maintained.

[0006] And the tape drum on which the adhesive tape is beforehand twisted while the aforementioned carriage is supported possible [ rotation on this carriage ], and the adhesive tape is pulled out one by one by the tension accompanied by a run move of carriage, The tape initial pressure arrival member which sticks on a work the edge of the adhesive tape which was prepared in the aforementioned carriage possible [ vertical movement ], and was pulled out by the down operation from the aforementioned tape drum, It is prepared in the anti-run orientation side possible [ vertical movement ] rather than a tape initial pressure arrival member among the aforementioned carriage. The tape book sticking-by-pressure member which presses an adhesive tape with a tape initial pressure arrival member so that the fraction stuck by pressure in the aforementioned tape initial pressure arrival member in connection with the run of the carriage [ itself ] in the state of the down may be followed, It is characterized by having the tape cutter which is prepared in the aforementioned carriage and cuts an adhesive tape to predetermined timing.

[0007] Therefore, in invention according to claim 1, if a tape initial pressure arrival member is dropped, the edge of the adhesive tape which it lets out from a tape drum is stuck on the work

currently fixed to the work positioning fixture, and carriage will be moved in the run orientation until a position comes to the bottom of this sticking-by-pressure member by the status with this at the beginning of tape \*\*\*\*. A tape book sticking-by-pressure member is dropped in this status, this tape book sticking-by-pressure member is directly contacted to a work, and this sticking-by-pressure operation of an adhesive tape is equipped with it. If it is made to run carriage in this status, while an adhesive tape is gradually pulled out from a tape drum in connection with this run, it will be stuck on a work one by one by the tape initial pressure arrival member. Since the physical relationship of a tape initial pressure arrival member and a tape book sticking-by-pressure member is eternal simultaneously even if carriage is running, as a tape book sticking-by-pressure member follows the fraction always pressed in the tape initial pressure arrival member, it sticks an adhesive tape on a work certainly. And if an adhesive tape is stuck on a work by the required length, a run of carriage will stop, a tape cutter will operate and an adhesive tape will be cut.

[0008] Invention according to claim 2 is characterized by send resistance of an adhesive tape giving the tape drum in invention according to claim 1 by the braking means.

[0009] Therefore, like this invention according to claim 2, if send resistance of an adhesive tape is given to the tape drum, even if it makes the travel speed of carriage high, a tape drum will race according to inertia and an adhesive tape will not be pulled out beyond at the need.

[0010] The tape drum and tape initial pressure arrival member in invention according to claim 2 are supported by the common slider, and invention according to claim 3 is characterized by being that to which this slider moves up and down to carriage.

[0011] Therefore, in invention according to claim 3, the tension of the adhesive tape currently pulled out by vertical movement of a tape initial pressure arrival member from the tape drum at least does not change suddenly from a tape initial pressure arrival member and a tape drum moving up and down in one.

[0012] Invention according to claim 4 is prepared possible [ vertical movement of a tape supplementary sticking-by-pressure member ] among the carriage in invention according to claim 3 between the tape initial pressure arrival member and the tape book sticking-by-pressure member. A tape supplementary sticking-by-pressure means carries out a down operation following the tape initial pressure arrival operation by the tape initial pressure arrival member, and it is characterized by sticking a part for an anti-run flank by pressure rather than this tape initial pressure arrival member among the edges of the adhesive tape stuck in the aforementioned tape initial pressure start card row.

[0013] Therefore, when the edge of an adhesive tape is stuck on a work by the tape initial pressure arrival member, a tape supplementary press member makes the anti-run orientation side of carriage further stuck by pressure rather than the initial press member of a tape among the stuck adhesive-tape edges in this invention according to claim 4. As the relief of the edge of an adhesive tape is canceled certainly, for example, a tape initial pressure arrival member is followed by this, in case a tape book sticking-by-pressure member makes an adhesive tape stick by pressure, the situation where an adhesive tape is made to exfoliate will be prevented.

[0014] Invention according to claim 5 is prepared possible [ vertical movement of a knife-edge-like tape cutter ] among the carriage in invention according to claim 4 between the tape initial pressure arrival member and the tape book sticking-by-pressure member. Tension is given to the adhesive tape currently pressed by only the tape book sticking-by-pressure member by raising a tape initial pressure arrival member and a tape supplementary sticking-by-pressure member just before a tape attachment work end. It is characterized by cutting an adhesive tape by dropping a tape cutter to this tension grant fraction.

[0015] therefore, in this invention according to claim 5 The structure where a tape initial pressure

arrival member and a tape drum move up and down in one is used positively. Moderate tension is given to an adhesive tape by making a tape drum upper-\*\* with a tape initial pressure arrival member, though it is a carriage idle state. A knife-edge-like tape cutter is dropped to the adhesive tape of this tension grant status, and the adhesive tape currently stuck on the work is cut between tape drum sides.

[0016] It is characterized by being formed of the felt which each sticking-by-pressure member in invention according to claim 5 contacts an adhesive tape directly, and invention according to claim 6 makes stick this to a work by pressure.

[0017] Therefore, in this invention according to claim 6, even if the work with which an adhesive tape should be stuck is a curved surface, the sticking-by-pressure member made from the felt can follow this faithfully, and can stick an adhesive tape on a work front face certainly at it.

[0018]

[Effect of the Invention] It is made to run carriage, after sticking the edge of an adhesive tape on a work in a tape initial pressure arrival member according to invention according to claim 1. From it having been made to carry out actual sticking by pressure, an adhesive tape in the tape book sticking-by-pressure member which follows the above-mentioned tape initial pressure arrival member, pulling out an adhesive tape from a tape drum Moreover, can perform complicated tape attachment work efficiently at high speed, and a productivity improves sharply, and also it is effective in canceling dispersion in the attachment condition of an adhesive tape, and being able to contribute also to a upgrading.

[0019] According to invention according to claim 2, since it delivers to the adhesive tape delivered from the above-mentioned tape drum with a braking means etc. and it is made to give resistance, even if it accelerates the travel speed of carriage, there is an effect which an adhesive tape is not pulled out from a tape drum beyond at the need, and can accelerate attachment work of an adhesive tape much more with the enhancement in an operation reliability.

[0020] Since according to invention according to claim 3 it constituted so that a tape drum and a tape initial pressure arrival member might move up and down in one, it is effective in the tension of an adhesive tape not changing abruptly according to vertical movement of a tape initial pressure arrival member, and the operation reliability's of equipment improving also by this.

[0021] According to invention according to claim 4, apart from the tape initial pressure arrival member and the tape book sticking-by-pressure member, it has the tape supplementary sticking-by-pressure member further. In order for this tape supplementary sticking-by-pressure member to make the anti-run orientation side of carriage stick by pressure further rather than the fraction stuck by pressure in the tape initial pressure arrival member among the edges of an adhesive tape, Edge sticking by pressure of the adhesive tape which precedes this sticking by pressure of an adhesive tape is more performed to an authenticity, and it is effective in the ability to prevent the sublation from the edge of an adhesive tape beforehand.

[0022] Since the adhesive tape was cut in the knife-edge-like tape cutter according to invention according to claim 5, giving tension to an adhesive tape by elevation of a tape drum, while the ribbon can be more cut to an authenticity and the cutting ribbon position for celebration is stable, a position is also stabilized at tape \*\*\*\* the beginning of the following cycle, and it is effective in the ability to also prevent a cut mistake beforehand further.

[0023] Since each above-mentioned sticking-by-pressure member was formed with the felt, while according to invention according to claim 6 an adhesive tape can be stuck and the attachment quality of an adhesive tape improves, making it follow in the cross-section configuration of a work faithfully, a blemish is not given to the adhesive tape or work at the time of adhesive-tape

attachment.

[0024]

[Embodiments of the Invention] Drawings 1 -7 are drawings showing the gestalt of desirable implementation of the adhesive-tape automatic attachment equipment concerning this invention, and show the equipment configuration in the case of sticking adhesive-tape type masking tape T on a part of door glass run 1 of an automobile which is shown in drawing 8.

[0025] The channel section 2 which makes the shape of a cross-section abbreviation \*\* character as a door glass run mainframe to which the door glass run 1 receives the door glass besides illustration, and it shows this as shown in drawing 8, It is what is collectively formed in the reverse sense from this side-attachment-wall section 3b with the flange fitting section 4 of the shape of a cross-section abbreviation \*\* character installed in one as a thing of the shape of a long rail of the letter cross section of abbreviation deformation of S characters in the form where one side-attachment-wall section 3b of this channel section 2 is shared. It is fabricated by carrying out extrusion molding of the solid rubber so that a rodding 5 may generally be covered.

[0026] And the outer seal lip 6 and the inner seal lip 7 which project aslant toward the inner direction in the opening edge of the channel section 2 from the edge of the side-attachment-wall sections 3a and 3b are formed in one, and also While the flange hold lip 9 is formed in the flange fitting section 4 with the fitting slot 8 at one and the fitting hold of the above-mentioned fitting slot 8 is carried out at a predetermined flange at the time of with [ a car-body group ], both seal lips 6 and 7 of an outer and an inner serve as the form where it \*\*\*\*s on door glass. In addition, the outer seal lip 6 will be located and the inner seal lip 7 will be located in a vehicle outdoor side at a vehicle interior-of-a-room side on both sides of door glass in the time of with [ to a door / a group ], respectively.

[0027] Furthermore, about the outside surface of this side-attachment-wall section 3a, since the outside surface of side-attachment-wall section 3a which becomes a vehicle outdoor side among the channel sections 2 turns into an important design side (mall side) on molding of the car-body side face, in order to get damaged and to prevent a grade, after [ a parts circulation phase ] transparence or adhesive-tape slack masking tape T with the color is stuck beforehand, a door erector is supplied as a car-body erector.

[0028] With the gestalt of this operation, the equipment which sticks masking tape T on the outside surface of side-attachment-wall section 3a which is a part of channel section 2 of the above-mentioned door glass run 1 automatically is offered, and the detail of the equipment is shown in one or less drawing.

[0029] drawing 1 -- transverse-plane explanatory drawing of the whole equipment -- drawing 3 shows the important section enlarged view of drawing 1, and, as for drawing 2, drawing 4 shows the plan of drawing 3 for the important section expansion side elevation of drawing 1, respectively In these drawings, the mainframe frame from which 11 was prepared with the stand and 12 was prepared with the erection posture on the stand 11, the carriage with which 13 was supported through the linear guide 14 and the ball thread 15 to the mainframe frame 12 possible [ a slide to a horizontal direction (space and the rectangular orientation of drawing 2) ], and 16 are work positioning fixtures which clamp and position the door glass run 1 which is prepared on the aforementioned stand 11 and is set as the attachment object of masking-tape And since the nut member 18 which screws in a screw shaft 17 and forms the ball thread 15 with this screw shaft 17 is being fixed to carriage 13, by rotating normally or inversion driving a screw shaft 17 with a servo motor 19, carriage 13 carries out straight-line reciprocating motion to the longitudinal direction to the door glass run 1, and masking tape T is stuck on the door glass run 1 so that it may mention later.

Thereby, the slide drive means for making it run carriage 13 with the above-mentioned ball thread 15, the servo motor 19, etc. is constituted.

[0030] In addition, attachment of masking tape T to the door glass run 1 is performed in the process which carriage 13 slides in the orientation of arrow head A of drawing 1 (\*\*\*\*). The carriage 13 runs and stops to the position which masking tape attachment of the orientation of arrow head A completes. Where all pasting work is completed, the door glass run 1 tape stuck is discharged, and it returns to an initial state by carriage 13 carrying out a slide operation (double action) in the orientation of arrow head A, and the opposite orientation in advance of an injection of the following door glass run 1.

[0031] As shown in the views 2 -4 besides drawing 1, the tape drum 20 on which masking tape T was twisted around the front face of carriage 13 sequentially from the run orientation side of this carriage 13, the initial pressure arrival device 21 and the supplementary sticking-by-pressure device 22, the cutting ribbon device 23 for celebration, and this sticking-by-pressure device 24 are formed in each.

[0032] The slider 26 which makes the shape of an abbreviation rectangle through a slide guide 25 on carriage 13 is formed in the vertical orientation possible [ a slide ], and this slider 26 is connected with the piston rod 28 of the air cylinder 27 prepared in carriage 13. By this, according to a flexible operation of an air cylinder 27, a slider 26 will carry out a rise-and-fall operation.

[0033] The tape drum 20 is formed in the above-mentioned slider 26 with the guide idler 29. As shown in drawings 5 -7, it is being fixed to the slider 26 removable by the adapter 32 by the drum shaft 31 by which bearing support was carried out through bearing 30, and if predetermined tension is given to masking tape T pulled out from this tape drum 20 so that it may mention later, masking tape T will deliver the tape drum 20 through a guide idler 29 from the ability of tape drum 20 the very thing to rotate freely.

[0034] Moreover, the braking means slack brake chuck 33 is attached to the drum shaft 31 of the above-mentioned tape drum 20. This brake chuck 33 is equipped with the chuck presser foot stitch tongue 34 of the couple which pinches the drum shaft 31 from right and left, and is always carrying out pressurization pinching of the drum shaft 31 elastically according to the force of the hydrostatic pressure enclosed in the mainframe 35, or a spring. Thereby, predetermined resistance gives in case of the drawer of masking tape T from the tape drum 20.

[0035] Moreover, to a slider 26, guide block 36 takes possible [ justification with a bolt 37 ], and it is \*\*\*\*\*. The guide idler 38 and the needlelike guide pin 39 are formed, and also the initial pressure arrival child 40 and the electrostatic elimination brush 41 made from the felt as a tape initial pressure arrival member are installed in this guide block 36 side by side. And masking tape T pulled out from the above-mentioned tape drum 20 is supplied to this sticking-by-pressure device 24 side later mentioned after passing through the initial pressure arrival child 40 and the electrostatic elimination brush 41, showing around by guide idlers 29 and 38 and the guide pin 39.

[0036] Therefore, the tape drum 20, the guide idlers 29 and 38, the initial pressure arrival child 40, etc. who were equipped by this will do the rise-and-fall operation of the slider 26 in one as a parent according to a flexible operation of the above-mentioned air cylinder 27.

[0037] The supplementary sticking-by-pressure device 22 which adjoins the above-mentioned slider 26 is connected with the piston rod 43 of the air cylinder 42 prepared in carriage with the perpendicular posture, and this air cylinder 42, it is formed from the electrode-holder block 45 holding the supplementary sticking-by-pressure child 44 of the shape of an abbreviation rectangle which consists of the felt as a tape supplementary sticking-by-pressure member, and this



supplementary sticking-by-pressure child 44 carries out a rise-and-fall operation according to a flexible operation of an air cylinder 42.

[0038] Moreover, the cutting ribbon device 23 for celebration by which contiguity arrangement was carried out with the above-mentioned supplementary sticking-by-pressure device 22 is formed from the air cylinder for cutters 46 prepared in carriage 13 with the predetermined tilt angle, and the cutter electrode holder 49 holding the cutter blade 48 of the shape of knife edge as a tape cutter connected with the piston rod 47 of this air cylinder for cutters 46, and the cutter blade 48 carries out a rise-and-fall operation according to a flexible operation of the air cylinder for cutters 46.

[0039] Furthermore, this sticking-by-pressure device 24 by which contiguity arrangement was carried out with the above-mentioned cutting ribbon device 23 for celebration The air cylinder 50 prepared in carriage 13 with the predetermined tilt angle, Connect with the piston rod 51 of this air cylinder 50, and it is formed from the electrode-holder block 53 holding this sticking-by-pressure child 52 of the shape of an abbreviation rectangle which consists of the felt as a tape book sticking-by-pressure member. This sticking-by-pressure child 52 does a rise-and-fall operation like the above-mentioned supplementary sticking-by-pressure device 22 according to a flexible operation of an air cylinder 50.

[0040] Next, order is explained later on, referring to a nine or less-drawing drawing for a series of procedure of automatic attachment work of masking tape T by the tape attachment equipment constituted as mentioned above.

[0041] As shown in drawings 1 and 2, carriage 13 is located in the stroke end by the side of masking tape attachment start in the status that positioning fixation of the door glass run 1 which becomes the work positioning fixture 16 for masking tape attachment is carried out correctly. This status is shown in (A) of drawing 9. In this status, all the sticking-by-pressure children 40, 44, and 52 and the cutter blade 48 are going up, and the edge of masking tape T pulled out from the tape drum 20 has reached to the directly under position of the initial pressure arrival child 40 and the supplementary sticking-by-pressure child 44 by the air which blew off from air piping which is not illustrated through guide idlers 29 and 38 or the guide pin 39.

[0042] If a slider 26 is dropped by operation of an air cylinder 27 from the status of (A) of drawing 9, as shown in this drawing (B), the tape drum 20 and the initial pressure arrival child 40 who are sharing the slider 26 will down in one, the leader of masking tape T will be stuck to the door glass run 1 by the initial pressure arrival child 40 by pressure, and initial pressure arrival will be completed.

[0043] Furthermore, the supplementary sticking-by-pressure child 44 is dropped by operation of an air cylinder 22 following initial pressure arrival, and the fraction by the side of the supplementary sticking-by-pressure device 22 is made to stick by pressure by the above-mentioned supplementary sticking-by-pressure child 44 rather than the fraction made to stick by pressure by the initial pressure arrival child 40 among masking tape T, as shown in (A) of drawing 10. Thereby, the leader of masking tape T is more stuck to an authenticity by pressure, and supplementary sticking by pressure is completed. You drop this sticking-by-pressure child 52 by operation of an air cylinder 24, and make it stuck to the door glass run 1 by pressure in it, as it is made to move in the orientation of arrow head A and carriage 13 is shown in (B) of drawing 10 until a position comes to this sticking-by-pressure child's 52 down position by the status with this at the beginning of tape \*\*\*\*.

[0044] In this way, if all the sticking-by-pressure children 40, 44, and 52 contact the door glass run 1, carriage 13 will start a slide operation at a predetermined speed toward the orientation of arrow head A of (B) of the drawing 1 and the drawing 10. From similarly each sticking-by-pressure children 40, 44, and 52 sliding on the door glass run 1 top in the orientation of arrow head A in



connection with a slide operation of this carriage 13 While predetermined tension is given to masking tape T, this masking tape T is pulled out one by one from the tape drum 20 and it is stuck on the door glass run 1 by the initial pressure arrival child 40 and the supplementary sticking-by-pressure child 44 As this sticking-by-pressure child 52 follows the fraction stuck by these initial pressure arrival children 40 and the supplementary sticking-by-pressure child 44, masking tape T is made to stick to the door glass run 1 by pressure certainly. And the above operation is continued until carriage 13 reaches the end by the side of a masking tape attachment end.

[0045] In addition, although static electricity may occur in connection with a delivery of masking tape T, since this static electricity is removed by the electrostatic elimination brush 41 shown in drawing 3, it can avoid the bad influence to tape attachment work.

[0046] Moreover, from the tape drum 20, even if it accelerates a motion of carriage 13, since masking tape T is pulled out while predetermined drawer resistance is always given by the brake chuck 33, masking tape T is not pulled out beyond at the need for the inertia of the tape drum 20.

[0047] Since carriage 13 stops in the position, it will wait for a halt of this carriage 13, and if carriage 13 reaches the above-mentioned end and attachment of masking tape T to the overall length of the door glass run 1 is completed, as shown in (A) of drawing 11, the supplementary sticking-by-pressure child 44 will go up. As shown in this drawing (B) following an elevation operation of this supplementary sticking-by-pressure child 44, a slider 26 goes up, and the tape drum 20 with which this slider 26 is equipped as a result, and the initial pressure arrival child 40 go up in one.

[0048] Predetermined tension is given to masking tape T in connection with an elevation operation of this slider 26, and among masking tape T, though 1 \*\* is stuck on the door glass run 1, the fraction located in between from this sticking-by-pressure child 52 to the initial pressure arrival child 40 exfoliates.

[0049] As shown in (A) of drawing 12 in this status, the masking tape T is cut by the cutter blade 48 downing by operation of the air cylinder for cutters 46, and pressing against a previous tension grant fraction among masking tape T. As shown in this drawing (B), the elevation operation of the cutter blade 48 which finished cut work of masking tape T is carried out immediately.

[0050] And as it waits for the completion of a cut of masking tape T and carriage 13 shows (A) of drawing 13, the slide operation only of the minute stroke is carried out in the orientation of arrow head A, and sublation partial Q of the tape terminal produced at the time of a cut of masking tape T as shown in (B) of drawing 12 is made to stick by pressure again.

[0051] In this way, if terminal sticking by pressure of masking tape T stuck on the door glass run 1 is completed, as shown in (B) of drawing 13, this sticking-by-pressure child 52 will do an elevation operation for the first time, and attachment work of masking tape T to the door glass run 1 will be completed with the above.

[0052] And after the door glass run 1 which finished attachment of masking tape T is taken out from the work positioning fixture 16 shown in drawings 1 and 2, while the following door glass run 1 is set to the work positioning fixture 16, the slide operation of the carriage 13 will be carried out at a stretch, it will return in the orientation of anti-arrow head A, and the opposite orientation at an initial valve position, and will repeat the same operation as the above henceforth.

## DESCRIPTION OF DRAWINGS

---

## [Brief Description of the Drawings]

[Drawing 1] In drawing showing the gestalt of desirable implementation of the tape automatic attachment equipment concerning this invention, it is transverse-plane explanatory drawing of the whole equipment.

[Drawing 2] Important section expansion right lateral explanatory drawing of drawing 1 .

[Drawing 3] Important section expansion explanatory drawing of the carriage shown in drawing 1 .

[Drawing 4] Flat-surface explanatory drawing of drawing 3 .

[Drawing 5] Cross-section explanatory drawing of the tape drum shown in drawing 3 .

[Drawing 6] Tooth-back explanatory drawing of drawing 5 .

[Drawing 7] Transverse-plane explanatory drawing of drawing 5 .

[Drawing 8] The important section perspective diagram of the door glass run on which masking tape was stuck.

[Drawing 9] Operation explanatory drawing of each element which shows (A) and (B) to view 3 .

[Drawing 10] Operation explanatory drawing of each element which shows (A) and (B) to view 3 .

[Drawing 11] Operation explanatory drawing of each element which shows (A) and (B) to view 3 .

[Drawing 12] Operation explanatory drawing of each element which shows (A) and (B) to view 3 .

[Drawing 13] Operation explanatory drawing of each element which shows (A) and (B) to view 3 .

## [Description of Notations]

1 -- Door glass run (work)

13 -- Carriage

15 -- Ball thread (slide drive means)

16 -- Work positioning fixture

19 -- Servo motor (slide drive means)

20 -- Tape drum

21 -- Initial pressure arrival device

22 -- Supplementary sticking-by-pressure device

23 -- Cutting ribbon device for celebration

24 -- This sticking-by-pressure device

26 -- Slider

33 -- Brake chuck (braking means)

40 -- Initial pressure arrival child (tape initial pressure arrival member)

44 -- Supplementary sticking-by-pressure child (tape supplementary sticking-by-pressure member)

48 -- Cutter blade (tape cutter)

52 -- This sticking-by-pressure child (tape book sticking-by-pressure member)

T -- Masking tape (adhesive tape)